

retain her proud pre-eminence as a manufacturing nation." Among the articles deposited in the stone were copies of the *Times*, *Nature*, and the *City Press*.]

NOTES

THE Graham medal, instituted in connection with the Philosophical Society of Glasgow (Chemical Section), for the encouragement of chemical research, and open to competition to all chemists, has, on the recommendation of Prof. Williamson, F.R.S., the adjudicator in the competition, been awarded to Mr. James Mactear, F.C.S., F.I.C., for a paper entitled "Some Researches on the Reactions involved in the Leblanc Process of Alkali Manufacture."

THE fifty-fourth meeting of the German Association of Naturalists and Physicians will be held at Salzburg on September 18-24 next. From the list of addresses we note the following:—Dr. von Pettenkofer (Munich), on the soil and its connection with the health of man; Herr Meynert (Vienna), on the laws which govern human thoughts and actions; Dr. von Oppolzer (Vienna), on the question: Is Newton's law of gravitation sufficient for the explanation of the motion of heavenly bodies, and are there reasons to designate it only as approximately true? Herr Mach (Prague), on natural history teaching. All these addresses (besides one by Herr Weismann (Freiburg-im-Breisgau), the subject of which is not yet fixed) will be delivered at the general meetings. For the entertainment of visitors sufficient preparations will be made; the programme enumerates social gatherings, concerts, and excursions into the charming neighbourhood of Salzburg.

THE German Society for Anthropology, Ethnology, and Prehistoric Research will meet this year at Ratisbon on August 8-10 next. The programme of the meeting is a very varied one. In the first place the members will visit the curiosities and collections of the ancient city itself and the numerous Roman antiquities in the neighbourhood. At the Roman necropolis near Kumpfmühl some excavations will be made. Addresses will be delivered on the Roman period in Germany, on the period of serial tombs, on the pre-Roman metal age, on the stone period, and on anthropological questions generally.

ON Saturday the Prince of Wales opened, at South Kensington, the International Medical and Sanitary Exhibition which is being held in connection with the forthcoming Medical Congress. Up to the present nearly 2000 members of the medical profession have signified their intention of attending the Congress.

AT the Annual General Meeting of the Society of Arts medals were awarded as follows for papers read at the meetings of the Society:—Prof. A. Graham Bell, E. P. Edwards (of the Trinity House), Mr. Alex. Siemens, Sir Bartle Frere, Mr. J. Y. Buchanan, Prof. Perry, Sir Richard Temple, and Mr. J. M. Maclean.

AMONG recent valuable additions of models of ships to the collection now being exhibited in the galleries south of the Royal Horticultural Gardens is a whole model of the *Livadia*, showing in miniature all the details of that noted yacht. It is lent by the builders, Messrs. John Elder and Co. The London and Glasgow Shipbuilding and Engineering Company have lent half-block models of three of their steamships, and by an ingenious use of mirrors in mounting these the whole of each vessel is represented, and fore and aft views can be conveniently studied. There are many other admirable models.

THE geological distribution of endemic goitre in England has been made the subject of a recent paper by Prof. Lebour of Newcastle. He shows that there is on the whole a striking

sameness in the distribution in this country and in France, where Dr. de St. Lager of Lyons has fully investigated the facts. One important point only he considers to be established as common to those rocks on which goitre does not occur—the absence of limestone together with that of metallic impurities. In both countries the rocks which support most goitre are such as are both calcareous and metalliferous. But there are plenty of facts to show that metalliferous impurities alone cannot be credited with the origin of the disease, else the Devonian and the granite would surely not be free from it. Neither will the absence of limestone alone be sufficient to check the growth of the disease, else the lignitiferous beds of France and the ferruginous sands of the Weald would not support it. (Dr. de St. Lager's conclusion is that endemic goitre coincides with metalliferous deposits, iron pyrites being in the first rank.)

THE Handbook of the Vertebrate Fauna of the County of York, by W. E. Clarke and W. D. Roebuck, the secretaries of the Yorkshire Naturalists' Union, is expected to appear about the beginning of August. The work will show what species are, or have been, within historical periods, found in Yorkshire. The authors are enabled to enumerate, as such, 508 species out of a total British list of 756, a fauna superior in numerical extent to that of any other county in the British Isles. The list includes 46 mammals, more than 300 birds (doubtful species being excluded), 12 reptiles and amphibians, and upwards of 150 fishes. For comparison, the British species *not* found in Yorkshire are also enumerated. Application should be made to the above-named gentlemen, 9, Commercial Buildings, Park Row, Leeds.

THE Marine excursion of the Birmingham Natural History and Microscopical Society to Oban this year, which extended from July 1 to July 12, proved a great success, and fully answered the expectations of its promoters. Thirty-two Members joined the excursion, including Dr. Thomas Wright, F.R.S., the President of the Midland Union of Natural History Societies, and Mr. E. D. Hamel, Ex-President of the Tamworth Natural History Society. There were also several ladies. A little steamer—the *Curlew*—of about twenty-five tons burthen, was chartered for a week. Dredging operations were carried on daily in the Bay of Oban and the neighbourhood in depths varying from fifteen to fifty fathoms, under the superintendence of Mr. Edmund Tonks, B.C.S., and Mr. W. R. Hughes, F.L.S. A most interesting and beautiful collection of animals was taken. The specimens included fine examples of the Alcyonarian zoophytes. The Echinoderms embraced many genera from *Antedon* (*Comatula*) through the group to *Holothuria*. The Molluscs were not very numerous, but they included several rare forms. A few interesting fishes were taken, including the Lump-Sucker. The specimens will be examined by specialists and reported to the Society in due course. Those Members who did not engage in the dredgings had good opportunities of botanising and geologising, the indefatigable honorary secretary, Mr. Morley, having arranged a series of excursions to the principal places of interest in the district. On Sunday evenings July 3 and July 10, Dr. Wright also gave by request addresses "On the Basaltic Formations of Staffa and Iona," and "On Glaciation," which afforded great gratification to the Members. In the evenings demonstrations were given by the microscope and otherwise on the more interesting forms of life taken, by Prof. Bridge, Mr. W. P. Marshall, Mr. W. R. Hughes, and Mr. G. W. Tait. By the courtesy of Mr. R. H. Scott, of the Meteorological Office, telegrams were received daily, giving the weather forecasts for the morrow, which enabled the members to make their arrangements. At the termination of the excursion votes of thanks were accorded to the leaders of the party, who rendered assistance in various ways, and a resolution was passed selecting the Channel Islands as the place for the next marine excursion.

THE German Government has been requested by many eminent hydrologists to establish a hydrological "Reichs-Centralstelle." They consider hydrological researches extending over the whole Empire necessary for the general welfare with regard to the utilisation of water and for the general protection of arable lands against floods and inundations. As these researches would necessarily often be combined with meteorological observations, it is proposed to connect the Hydrological Office with the Meteorological Central Office. The work would have to be done principally by hydrologists and meteorologists, but the staff would have to comprise geologists, agriculturists, and forest-rangers.

THE news that in the Pastorat Moor of Dejbjerg (district of Rinkjåbing, Jütland) a carriage of the fourth or fifth century has been discovered, causes great sensation in archæological circles. At the beginning of this year the Museum of Northern Antiquities of Copenhagen received several bronzes which had been found in the moor in question, which unquestionably had originally been carriage ornaments. Perfectly similar bronzes had been found a few years ago at Broholm (Fünen) in a tomb, and had been explained as ornaments of a wooden carriage which had been burned with the dead. The discovery in the Dejbjerg Moor now confirms this view. Dr. H. Petersen, who also conducts the excavations at Broholm, was intrusted with the investigation of the Dejbjerg Moor, and his researches show that the fragments now found belonged to a state carriage with neatly turned spars and fine bronze ornaments on the wheels and sides. Apart from the carriage fragments only a few clay vessels were found. They all date from the migration period.

THE Archæological Society at Athens has purchased the land at Eleusis necessary in order to excavate the temple of Ceres. News from the director of the excavations at Epidauros state that the theatre excavated in the forest of Asklepios is the second largest of Ancient Greece and a masterpiece of the architect Polykleitos. Even the headless statue found there, which is supposed to represent Hygieia, is believed to be a work of Polykleitos.

THE Museum of Antiquities at Sparta is reported to have been broken open and robbed of many objects.

As we anticipated in our last issue, M. Berthelot has been nominated a life-member of the French Senate almost unanimously. It may be noted that it is just twenty years since M. Berthelot received the great prize of the Academy of Sciences for his method of producing artificially substances which have been found only in living bodies.

A SAD accident has happened in the vicinity of Lyons, where two balloons were sent up on the occasion of the *fête* of July 14. A match having been ignited close to the place where the largest landed, the balloon exploded instantaneously with a fearful crash. Three people were severely wounded.

M. DE MÉRITENS, the well-known electrician, tried a new system of electrical illumination on the occasion of the festivities of July 14. He suspended his regulators between two poles placed on each side of the Boulevard des Italiens and fifty feet high. A series of four of these regulators were placed at a distance of about 200 feet from each other. The effect was much approved by a large number of people.

A SPECIAL competition has been opened for erecting a statue to Carnot, the celebrated mathematician and politician of the First Republic. The number of competitors exceeds fifty, and some of the works sent are highly creditable to their authors. The statue is to be erected by public subscription at the birth-place of Carnot, Nolay, in Côte d'Or.

OUR Paris correspondent informs us that Philippart and Sons are preparing to work tramways at Roubaix with improved

Faure batteries, and that experiments will also shortly be made in London. Our correspondent witnessed some preliminary experiments which he thinks give room for high expectations. One of the most important changes is the substitution of flat for round sheets, which produced numerous cracks in the minium coating, and had been resorted to in imitation of the old Planté batteries.

AT the anniversary meeting of the Sanitary Institute of Great Britain held at the Royal Institution, Albemarle Street, on Thursday, July 14, the Right Hon. Earl Fortescue in the chair, an address was delivered by Prof. F. S. B. F. de Chaumont, M.D., F.R.S., chairman of the Council, entitled "Modern Sanitary Science," and the medals and certificates were awarded to the successful exhibitors at the exhibition held at Exeter in October, 1880.

THE forty-seventh anniversary meeting of the Statistica Society was held in the Society's rooms, King's College, Strand, on the 28th ult., Dr. W. A. Guy, a past president, in the chair. The report was highly satisfactory, showing that in the last decade the number of Fellows, the income, and the amount invested have been more than doubled, while the expenditure had increased in a less ratio. A new edition of the Library catalogue is being prepared. Ten papers had been read during the year. The president for 1881-82 is James Caird, C.B., F.R.S.

A SECOND earthquake is reported from Metkovich (Dalmatia). It was observed on June 14 at 5.27 a.m. During the night of May 17 a violent shock occurred in Haiti, causing several landslips, through which a large number of cattle perished. The volcano in the Gulf of Santorin, which has been inactive since 1870, again began to eject vapour on May 30 last. This activity increased considerably on June 2. The sea between Pala and Aeo Kaymene has again become heated. Earthquakes are reported from the east coast of Tunis. It is stated that since June 10 last Gabes and neighbourhood was visited by a great many violent shocks, some recurring at very short intervals. The last shock was felt during the night of June 22-23. The mountains in the neighbourhood of Gabes are of volcanic nature; smoke rises during the night from the Ay-Buin Mountain (about 30 kilometres to the north-west of Gabes), and at Hamma, 18 kilometres from Gabes, there are hot springs. Shocks of earthquake are reported from different places in Dalmatia: Ragusa on July 4, at 10.28 a.m.; Budua, Castelastua, Sutomore, on July 4, at 10.19 a.m. and 1.53 p.m.; duration, two to four seconds; direction, north to south.

THE growth of American journalism is shown by recent census results to have been much more rapid than that of English. In 1824 there were eleven daily newspapers in Philadelphia and twelve in New York, with a circulation varying from 1000 to 4000 copies. To-day the State of New York has 115 daily newspapers and 84 weeklies, with a combined annual circulation of 384,328,454; and Pennsylvania 98 daily newspapers and 57 weekly papers, with a combined circulation of 202,539,482. There are 962 daily newspapers in the United States, and 803 weekly, semi-weekly, tri-weekly, and Sunday newspapers. The total circulation of all newspapers is estimated to be 1,344,101,235, the bulk of which is in ten great States.

FROM a recent U.S. Census Bulletin relating to the Fishery Industries of the Pacific States and Territories (California, Oregon, Washington, and Alaska) we gather that the total number of persons engaged in these fisheries is 16,745, of whom 7910 are Esquimaux, Aleuts, and Indians, and about 4000 Chinese. A capital of over 2½ million dollars is invested in vessels, boats, apparatus, building, &c. There are 53 vessels and 5547 boats. Among other items in this Bulletin we note that the number of salmon caught in 1880 (to which all these

numbers refer) was 2,755,000, with a total weight of 51,862,000 lbs. The number of sealskins obtained was 155,718, valued at 1,540,912 dollars.

M. FERRY has ordered the teachers of elementary classes of the colleges to conduct their pupils into the galleries of the Museum of Natural History at Paris, to explain to them the differences of the several kinds of animals, plants, and minerals, and to incite young pupils to collect specimens during their walks in the country round Paris.

AN attempt at silk cultivation is to be made at Akaron, New Zealand, the valleys and bays of Banks' Peninsula being considered well suited for that purpose. The Colonial Government are sending to California and Japan for silkworms' eggs and mulberry trees of the best kinds, with the view of encouraging the industry.

THE *Colonies and India* reprints from a New Zealand paper some notes on a discussion at the Otago Institute, when Prof. Parker exhibited the skin and body of the extremely rare and remarkable bird, *Notornis Mantelli*. The specimen in question is only the third which has ever been captured, was caught low down on the ranges, and it is probable that an expedition will be fitted out to search for more of the species.

A POPULAR explanation of Kant's "Kritik der reinen Vernunft," by Albrecht Krause, has just been published by Moritz Schauenburg of Lahr (Germany), "in celebration of the centenary of the publication of the great work."

AN important invention relating to railway signals has recently been made in Germany, and the model apparatus has just been completed at the central works of the Bergisch-Märkische Railway Company at Witten. The model will be exhibited at the Electro-Technical Exhibition at Paris.

THE additions to the Zoological Society's Gardens during the past week include a Red-handed Tamarin (*Midas rufimanus*) from Surinam, presented by Mr. Keiser; an American Black Bear (*Ursus americanus*) from Nova Scotia, presented by the Earl of Caledon, F.Z.S., and the Hon. Charles Alexander; two Grey Ichneumons (*Herpestes griseus*) from India, presented respectively by Mr. C. R. Smith and Mrs. C. Hassell; a Common Raven (*Corvus corax*), British, presented by Major Botts; a Carrion Crow (*Corvus corone*), European, presented by Miss Mortimer; a — Monitor (*Monitor*, sp. inc.) from Ceylon, presented by Mr. E. Lindstedt; a Sykes' Monkey (*Cercopithecus albogularis*), three Vulturine Guinea Fowl (*Numida vulturina*) from East Africa, deposited; three Common Peafowl (*Pavo cristatus*), two Cheer Pheasants (*Phasianus wallichii*), two Horned Tragopans (*Cerionis satyra*), a Siamese Pheasant (*Euplocamus pralatus*), bred in the Gardens.

METEOROLOGICAL NOTES

FROM a discussion by Dr. Hann of a series of hourly summer observations of air-pressure, temperature, moisture, cloudiness, and force of wind made by the U.S. Engineer Corps on the plateaux of the Rocky Mountains (the stations lying between 3500 and 8500 feet above the sea), it appears that in valleys and wide basins, even at the greatest height, the influence of the daily barometer oscillation in summer is still very great, and no decrease with the height is noticed. The course of the curve is of the continental type, a comparatively large afternoon minimum, a slightly marked morning minimum, and an earlier occurrence (7 to 8h.) of the morning maximum. In the temperature-curve the most notable point is that the maximum is very near midday, or little behind the culmination of the sun. The maximum of absolute moisture occurs about 8 a.m., and a second smaller maximum in the afternoon or evening. The maximum of cloudiness and wind-force occurs between 3 and 4 p.m., the minimum between 3 and 4 a.m.

IN a letter dated April 14, Mr. Russell of the Sydney Observatory remarks that the rain return for 1880 shows it to have been a dry year in New South Wales, as in many other parts of the world; but the want of rain was not severely felt because it

came at favourable times for grass. Perhaps the most curious consequence of the short supply of rain was the stoppage of the river navigation for a considerable part of the year, thus preventing the wool from going by steamer to market, and increasing the cost of all stores consumed: the river curves show, for instance, that at Bourke the water was at summer level from June to October, thus preventing navigation. Mr. Russell hopes, by the combination of the rain and river observations, to find an answer to a local question of very great importance, viz. the amount and source of the water found in wells which are being sunk by the hundred in the inland parts of the colony. There can be no doubt that all, or nearly all, the water brought down in such abundance from Tropical Queensland by the Culgoa, Warego, and Paroo Rivers sinks into the ground before it reaches New South Wales, and there is good reason for thinking that much of the water brought down by the heads of the Darling sinks into the ground before it reaches Bourke. If this can be proved, which he thinks can be done in the course of a few years, there will be no fear for the abundance and permanence of the well-water. And when it is remembered that in most cases the water rises to within thirty or forty feet of the surface, in many instances to the surface, and in one case twenty-six feet above the surface, the local importance of the question will be obvious.

IN studying the conditions of temperature of the Russian Empire some time ago, M. Wild found that the irregular distribution of temperature revealed by the isotherms might be elucidated by means of "isonomals" (or lines of equal temperature-anomalies). Among the causes of the isonomals special regard must be had to the wind, which again immediately depends on the distribution of air-pressure, as shown by the isobars. A comparison of the lines of equal pressure with the lines of temperature-anomalies thus suggested, led M. Wild to recognise an intimate relation between the two systems. Reasoning from the results arrived at, he has attempted with some success to rectify the isobars over certain regions, where from want of observations their course was somewhat uncertain; and further has even suggested the probable existence of a pressure-maximum in Northern Siberia, of which region however little if anything is positively known, owing to the want of barometric observations. M. Wild's paper, which is of a provisional nature, appears in the *Bulletin* of the St. Petersburg Academy. (It is noted that M. Teisserene de Bort, in the Paris Academy, has to a certain extent been prosecuting the same subject.)

AS an evidence of the great cold of last winter Mr. Angus M'Intosh, Schoolhouse, Laggan, states in the *Scotsman*, that on June 20 the Balgown peat moss in that parish was still frozen at the depth of 2½ feet beneath the surface.

THE aurora has been remarkably frequent at Stykkisholm, Iceland, last winter. From September 5, when the first aurora of the season was observed, to February 28, to which date the observations have been received, auroras were seen on forty-five nights, viz., five in September, eleven in October, four in November, eight in December, twelve in January, and five in February, the phenomena being very brilliant on September 29, December 23, January 31, and February 5.

FOR some time the Registrar-General has been printing in his weekly returns the deaths from small-pox in London under three heads, viz., the vaccinated, the unvaccinated, and those regarding whom no statement is returned. The results show for the whole mortality from small-pox substantially the small-pox curve as given in NATURE (vol. xxiv. p. 144), with its characteristic saddle-shaped maximum, the dip between the two heights of the curve being towards the end of March. On projecting curves of the death-rates for the vaccinated and the unvaccinated, it is seen that the dip in the curve for the whole mortality is due to a diminution of the deaths of the unvaccinated during March as compared with what occurred before and after. In other words, those climatic influences which raise the mortality from small-pox to the annual maxima, first in January-February, when the weather is coldest, and again in May when driest, bear with more fatal effect on the unvaccinated than the vaccinated. As fatal terminations in small-pox cases arise chiefly from complications with other diseases, and as the times of maxima of the curve point to diseases of the nervous system and the respiratory organs as those mostly concerned, even one year's results, particularly a year with cold and dryness so unusually pronounced, may be pointed to as warranting an inquiry of some importance into the relations of the vaccinated and unvaccinated to attacks of small-pox.